

SEQUENCE LISTING

<110> RHEE, Sangki
SONG, Kibang
KIM, Chulho
RYU, Eunja
Lee, Yongbok

<120>Enzymatic Production of Difructose Dianhydride IV from Sucrose and Relevant Enzymes and Genes Coding for them

<130> 24679

<140> US 09/868,328

<141> 2001-06-18

<150> PCT/KR00/01183

<151> 2000-10-19

<160> 4

<170> PatentIn 3.1

<210> 1

<211> 2001

<212> DNA

<213> Arthrobacter ureafaciens K2032

<400> 1

gcggtgcacc	ccgacttccc	ctcgacgacc	accgtccccc	taccggccga	ccgcccggcc	60
cgactgctcc	tcagcctaga	cgggcccctc	ctcgaggtct	tcgtcgggga	cggtgaggcg	120
actgcgtcga	acctggtcct	cctggggggc	ggcgggtgtga	ccgcgagcct	cgagacggca	180
cggccaggaa	ccgtgcacgt	gaccgcgatc	gacgtcgagg	cgcccagcga	tgctgacgcc	240
cctgaacctg	ccgccgttct	gggctgacga	gcgtctccac	cccgcagcgt	ctccttctac	300
cgctgcccga	accaggggtg	acgcttcgtc	gcgcccaccc	gtccacgaga	ggaaccagca	360
atgacgccgg	ccatctcacg	ccgcgcctgt	ctccagggag	ccggcgccgg	agcactcgcc	420
ctgatcttcg	gcggtgctgt	gccgcctgca	gcccgggcat	ccgctccggg	ctcgctccgt	480
gccgtctacc	acatgacgcc	ccccagcggc	tggtctctcg	acccccaacg	cccggtcacc	540
accacggcg	cctaccagct	gtactacctg	cactccgacc	agaacaacgg	ccccggcggc	600
tgggaccacg	cgagcacgac	cgacggcgtc	gccttcacgc	accacggcac	cgtgatgccg	660
ctgcggcccc	acttccccgt	gtggtccggg	tcggcggtcg	tcggcaccgc	gaacacggca	720
gggttcggcg	ccggcgcggt	cgtcgcgtc	gcgaccagc	cgaccgacgg	cgtccgcaag	780
taccaggagc	agtacctcta	ctggtcgacc	gacggcgggg	tcacgttcac	cgccctgccc	840
gaccccgctca	tcgtcaaac	cgacggtcgc	gccgccacca	cgcccgccga	gatcgagaac	900
gccgagtggg	tccgcgaccc	caagatccac	tgggacaccg	cccgcggaga	atgggtctgc	960
gtcatcggac	gactgcggta	cgccgcgttc	tacacctcgc	cgaacctgcg	cgactggaca	1020
cttcgcggca	acttcgacta	cccgaaccac	gccctcgggc	gcatcgagtg	ccccgacctg	1080
ttcgagatca	ccgcagacga	cgggacacgc	cactgggtgc	tcgcgcgcag	catggacgcc	1140
tacggcatcg	gcctccccat	gacgtacgcc	tactggacag	gcacctggga	cggcgagcag	1200
ttccacgccg	acgacctcac	cccgaatgg	ctcgactggg	gctgggactg	gtacgcggcc	1260
gtcacctggc	catcgatcga	cgcgcccag	accaagcgcc	tcgccatcgc	gtggatgaac	1320
aactggaagt	acgccgcacg	cgacgtcccc	accgacgcac	ccgacggcta	caacgggcag	1380
aactcgatcg	tccgcgagct	gcggctcgcc	cgacagcctg	gcggctggta	cacctctctg	1440
agcaccctcg	tggcagcgct	gacgaactac	gtcaccgcca	ccaccacact	ccccgaccgg	1500
accgtcgacg	gcagcgccgt	cctgccatgg	aacggacgcg	catacgagat	cgagctcgac	1560
atcgccctggg	acaccgcgac	gaacgtcggc	atctcggtgg	gccgtcccc	cgacggaacc	1620

cggcacacga	acatcgggcaa	gtacggagca	gacctgtacg	tcgaccgagg	accctccgac	1680
ctgcgcgggt	actcgctcgc	cccctactcg	cgagccgcgc	cccccatcga	ccccggcgcc	1740
cgatccgtgc	acctgcgcac	cctcgctcgac	acccagagcg	tcgaggtctt	cgtaacgccc	1800
ggccacaccg	tgctctccca	gcaggtccac	ttcgccgagg	gcgacacggg	aatctcgctc	1860
tacaccgacg	gcggccccgc	acacttcacc	ggcatcgctc	tccgcgagat	tggccaggcg	1920
atctaggcga	tgcacaccac	accgctcacc	gaagccgcgc	cccgggagac	gacggccgac	1980
aatcgacacg	tcctcgctcg	t				2001

<210> 2

<211> 521

<212> PRT

<213> *Arthrobacter ureafaciens* K2032

<400> 2

MTFAISRRAV	LQGAGAGALA	LIFGGAVPPA	ARASAPGSLR	AVYHMTPPSG	WLCDFQRPVT	60
THGAYQLYYL	HSDQNNPGPG	WDHASTTDGV	AFTHHGTVM	LRPDFPVWSG	SAVVGTA	120
GFGAGAVVAL	ATQPTDGVK	YQEQYLYWST	DGGFTFTALP	DPVIVNTDGR	AATTPAEIEN	180
AEWFRDPKIH	WDTARGEWVC	VIGRLRYAAF	YTSPNLRDWT	LRRNFDYPNH	ALGGIECPDL	240
FEITADDGTR	HWVLAASMDA	YGIGLPMTYA	YWTGTWDGEQ	FHADDLTPQW	LDWGWDWYAA	300
VTWPSIDAPE	TKRLAIAMN	NWKYAARDVP	TDASDGYNGQ	NSIVRELRLA	RQPGGWYTL	360
STPVAALTN	VTATTTLPDR	TVDGSVLPW	NGRAYEIELD	IAWDTATNVG	ISVGRSPDGT	420
RHTNIGKYGA	DLYVDRGPS	LAGYSLAPYS	RAAAPIDPGA	RSVHLRILVD	TQSVEVFVNA	480
GHTVLSQQVH	FAEGDTGISL	YTDGGPAHFT	GIVVREIGQA	I		521

<210> 3

<211> 1800

<212> DNA

<213> *Zymomonas mobilis*

<400> 3

aaatataaat	ataaatattag	ttttaagtaa	aaacttccga	aaaaaatgtg	acttcgcttg	60
aaatgtcgaa	gcgtgtcttt	cgaaaaggca	gcctatttca	atatttctgc	ctttttgaaa	120
gtcgagaaca	agaattaatc	ttttttcggc	tttatttcat	catttattag	gatagtctct	180
atgttgaaata	aagcaggcat	tgacagagccg	agcttggtga	ctcgtgcgga	tgctatgaaa	240
gtgcataaccg	atgatcccac	ggcaaccatg	cctaccattg	attatgactt	tcctgtcatg	300
actgataaat	attgggtttg	ggacacttgg	cccttacgcg	atattaacgg	tcagggtgtc	360
agcttccaag	gttgggtcgg	gatctttgct	ttgggtcgtg	atcgcaccaa	atatggttgg	420
cataatcgca	atgatggcgc	cagaattggt	tatttctatt	cacgtggtgg	aagcaactgg	480
attttttgtg	gtcatcttct	gaaagatggt	gccaatccgc	gttcttgga	atggtctggt	540
tgacagatta	tgacacggg	tacggccaat	tctgtcgaag	tattctttac	gtctgtcaat	600
gatacgccgt	cagaatccgt	tcctgccag	tgcaagggt	acatctatgc	cgatgataaa	660
tcggtatggt	ttgacggttt	tgataaagt	accgatctgt	ttcaggcaga	tgccctttat	720
tatgctgatt	atgcagaaaa	taatttctgg	gatttccgcg	atccgcatgt	cttcattacc	780
ccgaagatag	gcaaaacata	tgccctgttt	gaaggtaatg	ttgccatgga	gcgcggtacg	840
gtcgctgttg	gcgaagagga	aattggccct	gttccaccaa	aaaccgaaac	gcctgatggc	900
gctcgctatt	gtgctgctgc	cattgggtatt	gcacaggccc	ttaatgaagc	ccgcaccgaa	960
tggaatttgt	taccgccttt	ggtaaccgcc	tttgggtgtc	atgaccagac	ggagcggcct	1020
catgtcgttt	tcagaatgg	cttgacctat	ctctttacga	tcagtcatca	ttcgacttat	1080
gocgatggtt	tgctgggtcc	tgatgggggt	tatggctttg	tttctgaaaa	cggcattttt	1140
ggcccttatg	aaccgctgaa	tggttccgg	ttggttctcg	gtaacccttc	ttcacagcct	1200
tatcaggctt	attcccatta	tgatgatgaca	aatgggctgg	tgacctcctt	cattgatacc	1260
attccgagtt	ctgacccgaa	tgtctatcgt	tatgggtggc	ccttggcacc	gaccatcaaa	1320
ttggaattgg	ttggccatcg	cagcttcgtt	accgaagtga	agggttatgg	ctatatccg	1380
ccacagatcg	agtgggtggc	agaagatgaa	tcttctaatt	ctgcggcagc	cctgtcttta	1440
ttgaataaat	aagattttatt	cattgtaaat	gacgtttctg	attatgcttg	aataaagcat	1500
tatcatcttt	tgagttttatt	tcaacttaag	ggtcatcagg	gcatttttgc	ctgatgacac	1560
ccttcctatt	cctaataata	atttcaagaa	agtgtatatt	actttaaatg	tttaatttta	1620
atgccagtcg	ctggacgcga	gccaagcga	tgaaagtga	taaatttgat	ttgacgacct	1680
ctatgccgga	aatcggcact	gattttccca	ttatgcgtga	tgacttgtgg	ctgtgggata	1740

cttggccatt acgggatatc aatggcaatc ctgtcagctt taaaggctgg aatgttattt 1800

<210> 4

<211> 423

<212> PRT

<213> *Zymomonas mobilis*

<400> 4

MLNKAGIAEP	SLWTRADAMK	VHTDDPTATM	PTIDYDFPVM	TDKYVWWDTW	PLRDINGQVV	60
SFQGWSVIFA	LVADRTKYGW	HNRNDGARIG	YFYSRGGSNW	IFGGHLLKDG	ANPRSEWWSG	120
CTIMAPGTAN	SVEVFFTSVN	DTPSESVPAQ	CKGYIYADDK	SVWFDGFDKV	TDLFQADGLY	180
YADYAENNF	W	DFRDPHFVIT	PKIGKTYALF	EGNVAMERGT	VAVGEEEIGP	240
ARYCAAAIGI	AQALNEARTE	WKLLPPLVTA	FGVNDQTERP	HVVVFQNGLTY	LFTISHHSTY	300
ADGLSGPDGV	YGFVSENGIF	GPYEPLNGSG	LVLGNPSSQP	YQAYSHYVMT	NGLVTSFIDT	360
IPSSDPNVYR	YGGTLAPTIK	LELVGHRSFV	TEVKGYGYIP	PQIEWLAEDE	SSNSAAALSL	420
LNK						423